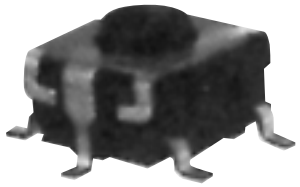
OMRON

Mechanical Keyswitch

B3S

Surface Mount Mechanical Keyswitch for High-Density Packaging

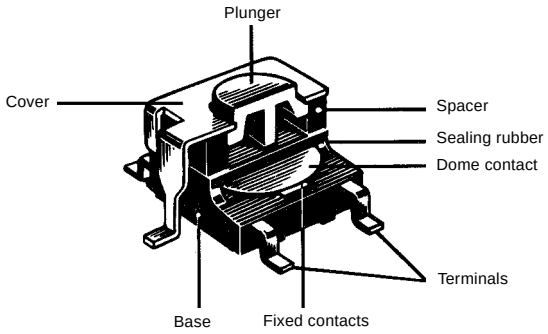
- Sealed construction allows immersion-cleaning of the PC board with the keyswitches mounted and soldered
- Ground terminal available to protect against static electricity
- Ideal for applications such as audio, office, and communications equipment, measuring instruments, industrial robots, VCRs, TVs, and vending machines
- Tape packaging style also available: contact OMRON for details



Ordering Information

Contact Form	Operating Force	Part Number			
		Without ground terminal		With ground terminal	
		Bags	Embossed Tape	Bags	Embossed Tape
SPST	General-purpose: 160 g	**B3S-1000**	**B3S-1000P**	**B3S-1100**	**B3S-1100P**
	High-force: 230 g	**B3S-1002**	**B3S-1002P**	**B3S-1102**	**B3S-1102P**

■ CONSTRUCTION



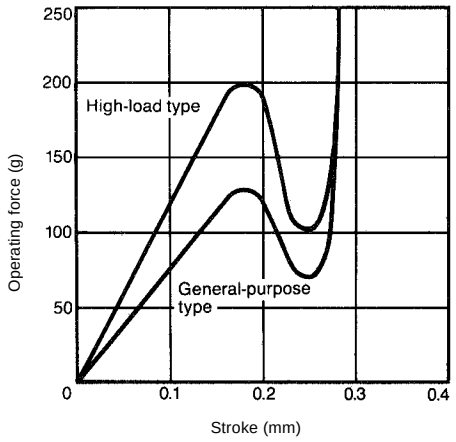
Characteristics

Switching capacity		50 mA 24 VDC (resistive load)
Permissible load		1 mA 5 VDC min. (resistive load)
Contact resistance		100 MΩ max.
Insulation resistance		100 MΩ min. (at 250 VDC)
Dielectric strength		500 VAC, 50/60 Hz for 1 minute
Bounce time		5 ms max.
Vibration	Malfunction durability	10 to 55 Hz, 1.5 mm double amplitude
Shock	Mechanical durability	1,000 m/s^2 (approx. 100 G)
	Malfunction durability	100 m/s^2 (approx. 10 G)
Ambient temperature		-25° to 70°C (with no icing)
Humidity		35% to 85% RH
Service life	General-purpose type	500,000 operations min.
[Mechanical/electrical]	High-force type	300,000 operations min.
Weight		Approx. 0.30 g

Note: Data shown are of initial value.

■ CHARACTERISTIC DATA

Operating force vs. stroke (typical example)



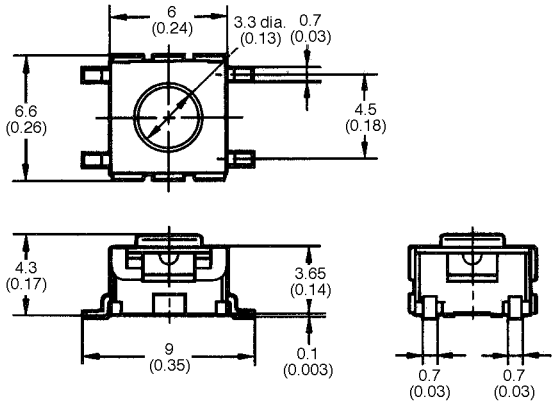
■ OPERATING CHARACTERISTIC

B3S-1000 series	General-purpose	High-force
Operating force (OF) max.	160 g	230 g
Release force (RF) min.	20 g	50 g
Pretravel (PT)	0.25 + $^{0.2}/_{-0.1}$ mm	0.25 + $^{0.2}/_{-0.1}$ mm

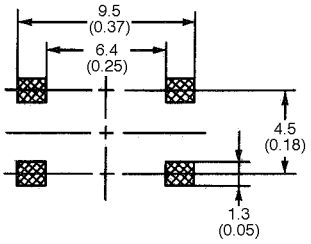
Dimensions

Unit: mm (inch)

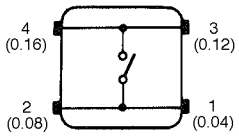
B3S-1000, B3S-1002



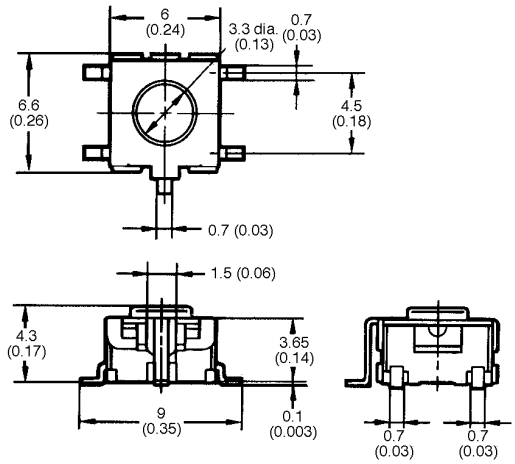
Footprint (top view)



Terminal arrangement/Internal connection (top view)



B3S-1100, B3S-1102



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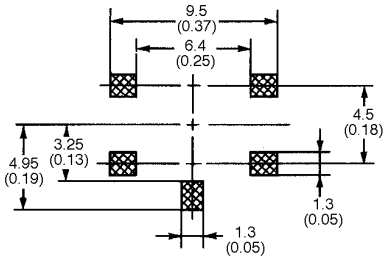

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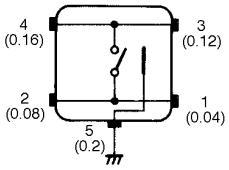
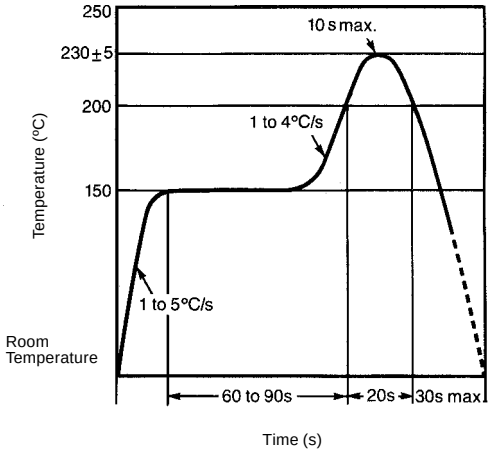


Hints on Correct Use

■ INFRARED REFLOW SOLDERING

Secure the thermocouple to the side of each switch terminal with solder having a high melting point. Then set the reflowing furnace so that the peak value of the terminal temperature becomes 230° ± 5°C. Take care that the peak value does not exceed 240°C. The temperature and the time conditions for the reflow soldering process are as shown in the chart at right.



■ WAVE SOLDERING

Dip the bottom of the PC board as follows:

– Solder temperature: 250°C ± 5° max.
– Exposure to molten solder: 5 s max.

Do not dip solder the keyswitches more than twice.

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